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INSTRUMENT OPERATING PROCEDURE

INSTRUMENT: Balance

MODEL: PG2002S

MANUFACTURER: Mettler

SERIAL NUMBER: 1118470288

USGS I.D. NUMBER: C0001

CALIBRATION FREQUENCY:

Daily when in use

PRECAUTIONS:

A. Potential Interferences

1. The balance is adversely affected by electromagnetic fields, temperature extremes, air currents, and vibrations. It must be set up where the effects of these factors are minimized.
2. Level the balance by adjusting the leveling feet so that the air bubble is centered within the circle of the level indicator.

B. Safety: Follow Material Safety Data Sheet (MSDS) precautions for solvent and the chemicals being weighed.

PROCEDURE:

A. Start-Up

1. If the balance has been connected to a power source for at least 30 minutes, it is ready for operation. If it is disconnected from a power source, reconnect it and allow it to warm up for at least 30 minutes.
2. When the balance is in the "STANDBY" mode, press the ON/OFF button or the tare bar to activate the display and perform an automatic test of the circuitry. A "0.00 g" weight display indicates successful completion of the test.

2. This balance has one weight range. You may adjust the display by pressing the 1/10th key briefly. The balance will be less exact (one decimal place less), but will display the result more rapidly.

B. Calibration

1. External calibration resets the internal calibration value. The balance must be externally calibrated every time it is moved to a new location, or as required by SOP GEN 013. This procedure will be per-

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formed according to the Mettler Toledo PG-S Operations Manual and by employee designated by the Work Leader or Study Director.

2. Internal calibration calibrates the balance using the saved external calibration setting. The balance must be internally calibrated on each day it will be used and after the balance is bumped, jarred, maintenance has been performed, or room temperature has changed more than 5°C. Make sure the [FACT] or [Cal Int] mode is selected in the menu.
 - a. Tare the empty balance by pressing the O/T key. As soon as the display shows a zero read-out, press and hold the CAL key. The balance will show that calibration is being performed in the display.
 - b. The balance reports successful completion of the calibration by displaying {Cal donE} for a short time.
3. Calibration verification (verifies the precision of the internal calibration)
 - a. Depress the tare sensor "O/T" to zero the balance.
 - b. Place an ASTM Class 6 (brass) or better test weight in the center of the weigh pan.
 - c. The reading on the balance must correspond to the weight of the standard within the accepted tolerance interval stated in the Instrument Maintenance and Calibration Log (Form CAP 333.1a).
 - d. If any standard is outside the accepted tolerance interval, repeat internal calibration (step B.2) and then repeat the calibration verification.
 - e. If the instrument still fails the calibration verification, have a designated employee (step B. 1.) externally calibrate the balance, then repeat the calibration verification.
 - f. If the instrument is still not in calibration, discontinue use and tag the balance with a label marked "INOPERABLE," the date and the operator's initials. Report the problem to the Study Director immediately and contact the proper service personnel. Describe the problem as well as any action taken in the Instrument Maintenance and Calibration Log (Form CAP 333.1a).

C. Routine Operation

1. Non-tared weighing

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a. Press tare sensor "O/T" to zero balance.

b. Place sample on balance and read weight after stability indicator "g" is illuminated.

2. Tared weighing

a. Place weigh container on balance pan and press sensor "O/T" to zero balance.

b. Place sample in container and read net weight directly.

D. Record Keeping (Recording Calibrations)

1. Record results of all calibrations in the Instrument Maintenance and Calibration Log (Form CAP 333.1a).

2. Items to be recorded in the log include the date of calibration, weight set serial number, calibration weights reported by the instrument, initials of the operator and any maintenance performed.

MAINTENANCE:

A. Routine: After each use, clean weigh pan of the balance and the balance table area by wiping with a lint-free tissue dampened with methanol.

B. Service Agreements (see SOP GEN 013): A record of service on the instrument, name of service representative, the service company and the date of service must be recorded in the Instrument Maintenance and Calibration Log (Form CAP 333.1a).

C. Malfunction/Repairs: See Calibration section, step B.3. Describe the problem and any action taken in the Instrument Maintenance and Calibration Log (Form CAP 333.1a).

D. Record Keeping: Record in the Instrument Maintenance and Calibration Log (Form CAP 333.1a) the description and part number of instrument parts that are replaced.

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REFERENCE: Mettler Toledo PG-S balances Operations Manual, Mettler-Toledo GmbH, Laboratory and Weighing Technologies, CH-8606 Greifensee, Switzerland
<http://www.mt.com>

SOP No. CAP 333.1
Page 4 of 5

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REVIEWED BY: _____ DATE _____
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APPROVED BY: _____ DATE _____
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